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| APPLICATION NO.       | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------|-------------|----------------------|---------------------|------------------|
| 10/811,628            | 03/29/2004  | Tapesh Yadav         | 037768-0234         | 2732             |
| 22428                 | 7590        | 06/21/2007           | EXAMINER            |                  |
| FOLEY AND LARDNER LLP |             |                      | LE, HOA T           |                  |
| SUITE 500             |             |                      | ART UNIT            |                  |
| 3000 K STREET NW      |             |                      | PAPER NUMBER        |                  |
| WASHINGTON, DC 20007  |             |                      | 1773                |                  |
| MAIL DATE             |             | DELIVERY MODE        |                     |                  |
| 06/21/2007            |             | PAPER                |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

|                              |                      |                  |
|------------------------------|----------------------|------------------|
| <b>Office Action Summary</b> | Application No.      | Applicant(s)     |
|                              | 10/811,628           | YADAV ET AL      |
|                              | Examiner<br>H. T. Le | Art Unit<br>1773 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 16 April 2007.
- 2a) This action is **FINAL**.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3,5,16-23,28,33 and 34 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) 1-44 are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 16, 2007 has been entered.

***Election/Restrictions***

2. Upon reconsideration, restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-3, 5, 8-13, 16-23, 25-28, 30-40, 43 and 44, drawn to a non-metallic inorganic nanomaterial, classified in class 977, subclass 776.
- II. Claims 4, 6, 7, 19, 20, 24, 29, 43 and 44, drawn to a metallic nanomaterial, classified in class 428, subclass 777.
- III. Claims 14, 15, 19, 20 and 41-44, drawn to a polymeric nanomaterial, classified in class 977, subclass 773.

3. Inventions I and II, I and III, and II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are not disclosed as capable of use together

because they have different affects due to their different composition. Group I is a non-metallic material which is different from the metallic material of group II. Groups I and II are non-polymeric material which are different from the polymeric material of group III.

3.1. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

3.2. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

4. This application contains claims directed to the following patentably distinct species:

Different Species of Group I:

- [1] Chalcogenide: Claims 1-3, 5, 21, 22, 23, 28, 33, and 34;
- [2] Non-oxide: Claims 8, 9, 12, 13, 16-18, 25, 27, 30, 32, 35, 36, 39 and 40;
- [3] Oxide: Claims 10, 11, 26, 31, 37, and 38.

4.1. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 19, 20, 43 and 44 are generic.

4.2. Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

4.3. Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species.

MPEP § 809.02(a).

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1, 2, 3, 5, 16-23, 28, 33 and 34 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for nanoparticles of aspect ratio greater than one (paragraph [0061]), greater than 2 (par. [0095]), and less than 25 (par. [0096]), does not reasonably provide enablement for an aspect ratio of greater than

5. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. From the description of the instant specification, there is no teaching

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or guideline of making nanoparticles having an aspect ratio of greater than 5. Although nanomaterials having an aspect ratio of less than 25 is discussed, there is no teaching in the disclosure that provides guidance for the production of nanoparticles with a specific aspect ratio of greater than 5. Chemical reactions are unpredictable, and nanomaterials are still new. A process of making one nanomaterial may not be applicable for making another. Therefore, a discussion of nanomaterial having an aspect ratio of less than 25 does not adequately provide support for a nanomaterial of an aspect ratio greater than 5.

6.1. Accordingly, newly amended claims 1, 2, 3; 5, 16-23, 28, 33 and 34, which include the limitation of aspect ratio great than 5 are based on a non-enabling disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 10:00 a.m. to 6:30 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



H. (Holly) T. Le  
Primary Examiner  
Art Unit 1773

June 18, 2007